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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,937	03/18/2004	Shinji Suzuki	740145-283	5167

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EXAMINER

FERNANDEZ, SUSAN EMILY

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/802,937	<b>Applicant(s)</b> SUZUKI, SHINJI	
	<b>Examiner</b> Susan E. Fernandez	<b>Art Unit</b> 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 5-8, 15 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-14 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/18/04, 9/3/04</u> | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-20 are pending.

#### ***Election/Restrictions***

Applicant's election of Group I, claims 1-4, 9-14, and 16 directed to a process for producing a film containing a chemotactic factor substance, in the reply filed on November 16, 2005, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 5-8, 15, and 17-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims 1-4, 9-14, and 16 are examined on the merits to the extent they read on the elected subject matter.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 16 is rendered indefinite by the phrase “process for producing an artificial material as claimed in claim 1...” since claim 1 does not recite such a process, and instead recites a process for producing a film containing a chemotactic factor substance. Furthermore, claim 16 is indefinite since it recites “the base treatment film”, which lacks antecedent basis since parent claim 1 does not recite a “base treatment film”. Also, the phrase “the film containing the adhesive substance” at line 6 lacks antecedent basis since parent claim 1 does not recite a film of this sort, or that there is the presence of an “artificial material”.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 9-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hypolite et al. (Bioconjugate Chem. 1997. 8: 658-663) in view of Ogawa et al. (EP 282201), Rhieu (US 6,143,477), and Miller et al. (US 5,821,013).

Hypolite et al. discloses a method for testing the effect of gradients of various molecules on the migration of cells (chemotaxis). This was done by producing a gradient of photo-linker-R-phycoerythrin conjugate (BP-TEG-PE) immobilized on a surface by laser irradiation on a motorized stage (abstract). Specifically, the surface of a Petri dish was coated with BP-TEG-PE, thus forming a film containing a chemotactic factor substance (BP-TEG-PE), and was placed on

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a stage for irradiation. See page 661, "Immobilization of BP-TEG-PE, 9." Furthermore, "the pattern of irradiation was generated by controlling the direction and the speed of stage movement during laser exposure" (page 661, "Immobilization of BP-TEG-PE, 9"). Therefore, the film was moved in order to generate the pattern of irradiation. No mention was given of the gaseous conditions of the atmosphere, therefore the laser irradiation experiments occurred in air (which comprises oxygen). The method disclosed by Hypolite et al. can be applied to the immobilization of gradients of various biological molecules, such as ECM protein, growth factors, and peptides (page 662, second column, last paragraph).

Hypolite et al. does not expressly disclose the degeneration of a chemotactic factor substance in order to arrive at a film comprising a gradient of said chemotactic factor substance.

Ogawa et al. discloses a pattern forming method wherein an organic thin film on a substrate is exposed by UV light at specific wavelengths in order to degenerate the organic thin film (abstract). Selective exposure may occur by using a photo mask (page 3, lines 44-45 and Figure 2).

Rhieu discloses a method for causing degeneration of organic material on a wafer wherein a wafer is placed in an apparatus in the presence of oxygen gas, light from a UV lamp is directed into the oxygen gas, causing ozone gas generation. Next, a second light is directed into the ozone gas in order to generate oxygen radicals necessary for organic material degeneration. See claim 1.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have degenerated the chemotactic factor substance of the Hypolite invention instead of varying the immobilization of the substance in order to obtain a gradient on film. In

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order to accomplish this, it would have been obvious to have applied the methods of Ogawa et al. wherein a photo mask (which acts as a “light shielding plate” between the film and the light source) is used. Therefore, the amount laser exposure across the film would have been affected by a “light shielding plate” in addition to the movement of the film caused by the stage movement as disclosed in Hypolite et al. One of ordinary skill in the art would have been motivated to do this since the formation of a gradient on film by organic material degradation would not have required the use of photoreactive cross-linking agents as accomplished by the immobilization technique taught by Hypolite et al. Furthermore, the methods taught by Ogawa et al. are applicable to the methods taught by Hypolite et al., since molecules suggested by Hypolite et al. (such as ECM proteins) are organic. Additionally, one would have been motivated to have used a mask (a light shielding plate) since it would have allowed for more drastic changes in light exposure across the film. Furthermore, there would have been a reasonable expectation of success in varying light exposure with the mask, which would have varied light exposure as accomplished by the movement of the stage holding the film. In summary, combining Ogawa et al. with Hypolite et al. would have rendered claims 1, 2, 4, 9, 10, and 13 obvious. For the same reasons as given above, it would also have been obvious to have degenerated chemotactic factor substances by the methods taught by Rhieu, where the film is placed in the presence of ozone.

Hypolite et al., Ogawa et al., and Rhieu do not expressly disclose a mask with a region of light transmission factor change which changes continuously in a given direction. Furthermore, the above references do not expressly disclose varying irradiation exposure by moving the light

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source in addition to or in lieu of moving the film by moving the stage as disclosed by Hypolite et al.

Miller et al. discloses a method for forming layers of photosensitive materials in different thicknesses. This is accomplished by varying the amount of light transmitted onto a layer of photo-sensitive material by using a mask with an area which “partially blocks light transmission in a manner varying with a distance from an edge” (claim 20) such that “the intensity of light transmitted through the area varies as a gradient with the distance from the edge” (claim 23). See also the abstract.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have used the mask disclosed by Miller et al. in addition to or in lieu of the moving the stage in order to obtain a gradient of chemotactic factor substance in the film. One of ordinary skill in the art would have been motivated to do this since the mask disclosed by Miller varies the amount of light transmitted onto the film as a gradient, as required by Hypolite et al. There would have been a reasonable expectation of substituting or combining the Miller mask with stage movement in order to vary the amount of irradiation required to obtain a gradient of the chemotactic factor substance in the film. Thus, a holding of obviousness is required.

No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan E. Fernandez whose telephone number is (571) 272-3444. The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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